UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,715	11/27/2001	Yoshihisa Kudo	Q67363	8359

21171 7590 08/05/2005

STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
PROCTOR, JASON SCOTT	
ART UNIT	**PAPER NUMBER**
2123	

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/993,715	KUDO ET AL.	
	Examiner	Art Unit	
	Jason Proctor	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 November 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-51* is/are pending in the application.

4a) Of the above claim(s) *27-51* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-51* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-51 were presented for examination. Applicants have elected claims 1-26. Claims 1-26 have been rejected.

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1-26, drawn to a workshop facility designing and operating method, classified in class 703, subclass 1 "Structural Design".

   II. Claims 27-35, drawn to a production line, classified in class 29, subclass 33R "Plural diverse manufacturing apparatus including means for metal shaping or assembling".

   III. Claims 36-51, drawn to a large area workshop production management system, classified in class 700, subclass 96 "Integrated System (Computer Integrated Manufacturing (CIM)).

The inventions are distinct, each from the other because of the following reasons:

Inventions I, II, and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the each group comprises a separate and distinct invention which is separately usable by itself. Each group has either a different mode of operation or function and thus are not necessarily capable of

use together. For example, both a production line and a workshop production management system is completely different from a workshop facility designing and operating method.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. David Pitcher, Reg. No. 25,908 on July 22, 2005, a provisional election was made without traverse to prosecute the invention of Group I, claims 1-26. Affirmation of this election must be made by Applicants in replying to this Office Action. Claims 27-51 are withdrawn from further consideration by the Examiner under 37 CFR 1.142(b) as being drawn to a non-elected invention.

Applicants are reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

2. Claims 1-26 are objected to because of the following informalities: Where a claim sets forth a plurality of elements or steps, each element of the claim should be separated by a line

indention. Please see MPEP 608.01(m). The claims of the instant application put forth several verbose limitations in paragraph form. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-26 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The disclosure contains abstract and repetitive language but fails to adequately describe the claimed invention. For example, page 22, lines 3-6 states:

> Referring to Fig. 1, the virtual workshop authoring means 22 is a means for formulating the virtual workshop 21 of the data model capable of being simulated by the simulating means 23, based on the data associated with facilities stored in the facilities database.

This is exemplary of the language and level of detail provided in the specification. Regarding this and related teachings, there is insufficient disclosure to describe what the "virtual workshop authoring means" actually represents. Perhaps the most detailed explanation of this claimed element is found at page 11, lines 8-11:

> The virtual workshop authoring means is capable of authoring the virtual workshop that is a model constructed based on data of the layout of the facilities and functions of the production facilities and the physical distribution facilities of the actual workshop.

This teaching fails to describe what the "virtual workshop authoring means" actually represents. It is never disclosed, for example, whether the "virtual workshop authoring means" is a set of drafting tools or a computer-implemented tool, and if the latter, whether it provides a command line interface or a virtual reality style design interface.

Another example of the inadequate written disclosure concerns the "simulating means". The disclosure sets forth the deficiencies of a "conventional" simulation means at page 2, lines 23-26:

> However, any of the conventional simulating means is a simulating means designed for application to a single facility or a single-purpose simulating means designed for application to a certain process step and is unable to perform a comprehensive evaluation.

The disclosure fails to provide an adequate written description of the simulating means used by the invention. The disclosure does further discuses the simulating means at page 7, lines 18-25:

> The simulating means referred to above outputs to a display device a layout diagram and a display descriptive of the state of flow of goods on the layout diagram. By way of example, it outputs a physical distribution line diagram. The display descriptive of the state of flow of goods on the layout diagram may be a graphical representation and/or alphanumerical representation. For the production state, for example, the productivity, that is, the amount of production per unitary time, and the operativity of the facilities are monitored.

This teaching fails to adequately describe how the simulating means achieves the stated functions. This is inadequate written description and does not convey to a person of ordinary skill what the term "simulating means" covers when used by Applicants. Additionally, the meaning of terms such as "unitary time" and "operativity" are unknown.

The examples above are regarded as exemplary of the deficiencies of the disclosure. The Examiner respectfully requests Applicants' assistance in identifying those portions of the specification which provide support that complies with 35 U.S.C. § 112, first paragraph, for these and other claim limitations.

The following is a quotation of the second paragraph of 35 U.S.C. § 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-26 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. The following rejections are exemplary of the general state of the claims. Applicants' are respectfully requested to review the claims in their entirety and to bring them into precise English that complies with 35 U.S.C. § 112 and current U.S. practice.

Regarding independent claims 1 and 2, these claims are directed toward "a workshop facility designing and operating method" that variously comprise "a virtual workshop verifying process", "a workshop deployment process", "a remote monitoring process", etc. It is at least ambiguous whether these claims fulfill the stated purpose of these "workshop facility designing and operating methods". In particular, there does not appear to be any step of "operating" a workshop. These claims recite the phrase "verifying [...] by means of a simulation means by causing the virtual workshop to perform [...] a[n] activity" which does not particularly point out how the verifying is performed, what functionality the simulation means performs, or the logical connection between the virtual workshop performing an activity and the act of verifying.

Claim 2 reiterates many of the limitations of claim 1 but adds the phrase "functions of a manufacturing facility or process step and a physical distributing facility of process step and information on a layout of these facilities" which is at least grammatically incorrect. This phrase appears to be lacking a verb or some indication of its relationship to the surrounding limitations. It is entirely unknown how to interpret phrases such as "functions of a manufacturing facility or process step" and "a physical distributing facility of process step". The claim further recites "remote monitoring the production state and the physical distribution state of the facilities in the layout" which lacks proper antecedent basis for at least the phrase "physical distribution state". The recitation of limitations in the alternative ("manufacturing facility or process step") could create a lack of antecedent basis elsewhere in the claims, however no such determination can be made at present.

Claims 1, 2, 13, 17 and 18 recite the phrase "quasi-production activity" which is not defined by the claim. The Examiner has interpreted this phrase to mean "simulated production activity" according to the specification, page 7, lines 6-8. Clarification is required.

Claim 13 recites "a virtual workshop system including a virtual workshop authoring means for authoring a virtual workshop that is a model constructed according to layout information" which renders the claim indefinite. It is unclear whether "a virtual workshop system", "a virtual workshop authoring means", or "a virtual workshop" is "a model constructed according to layout information". In broader terms, it is impossible to determine what "a virtual workshop system" is from the limitations presented. The form of the claim makes it impossible to determine if "a virtual workshop system" includes "a virtual workshop authoring means", "a

simulating means", and "a physical distribution state on the layout". Presenting these limitations in compliance with 37 CFR 1.75(i) would significantly improve the clarity of the patent protection sought.

Regarding the second clause of claim 13, it appears that "the production state" lacks antecedent basis. It is unclear how the layout is "employed in an actual workshop constructed according to the model of the virtual workshop so verified". The claim appears to omit or imply a step wherein an actual workshop is constructed. Clarification is required.

Regarding the preamble of claim 13, it is unclear how the recited limitations constitute an "operation support system". It is reasonably clear that the limitations define "a workshop facility design system".

Regarding claims 17 and 18, the preamble recites "a virtual workshop system which is a system for verifying a workshop" which appears to redefine the term "virtual workshop system". The Examiner respectfully recommends claiming "a workshop verifying system" if that is indeed what Applicants' intend to patent. Claims 17 and 18 reiterate the phrase "a virtual workshop authoring means for authoring a virtual workshop that is a data model of a workshop" which shares the several deficiencies explained above in the context of claim 13.

Claim 18 recites the limitation "while some of production facilities are arranged in a plural number to define a production line" which is at least grammatically incorrect. Further, the phrase "some of [the] production facilities" is a relative term not defined by the claim. It is unclear how many production facilities would be required to teach this limitation. It is unclear what is meant by "arranged in a plural number to define a production line". This phrase appears

to define "a production line" as "some of [the] production facilities arranged in a plural number", however the meaning of that definition is unclear.

Claims rejected but not specifically mentioned stand rejection by virtue of their dependence.

Applicants are respectfully reminded that the enumerated rejections under 35 U.S.C. § 112 in this Office Action are exemplary of the general state of the claims and by no means exhaustive.

Computer Related Inventions - 35 USC § 101

35 U.S.C. § 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. In light of the numerous rejections under 35 U.S.C. § 112, the Examiner is unable to make a proper analysis of the statutory nature of the claimed inventions. MPEP 2106(II) instructs the Examiner to answer the question "What has Applicant invented and is seeking to patent?" The Examiner cannot provide a satisfactory answer to this inquiry and therefore no rejections under 35 U.S.C. § 101 are currently being entered. The following is offered in the interest of compact prosecution to afford Applicants' the benefit of an analysis of the disclosed invention under 35 U.S.C. § 101 as best understood by the Examiner.

Applicants' are respectfully advised that none of independent claims 1, 2, 13, 17, and 18 clearly fulfill the requirements for a statutory computer related invention. Applicants' attention

is therefore respectfully drawn to MPEP 2106, in particular MPEP 2106(II)(A) and MPEP 2106(IV)(B)(1).

In general, methods executed by a computer should be claimed as "computer executed methods" or some equivalent, and must either result in a transformation outside of the computer or possess an asserted utility. None of this, however, will guarantee a statutory method in all circumstances. Of particular concern in the instant application is that none of the methods appears to be limited to execution by a computer, and numerous phrases in the claims have ambiguous definitions ("virtual workshop", "quasi-production activity", "verification", "data model", etc.) which, when given their broadest reasonable interpretation, are not limited to the technological arts. The useful, concrete, and tangible result of these methods is questionable (See MPEP 2106(II)(A)).

The systems of claims 17 and 18 are defined so ambiguously that it is unknown exactly what the claimed invention is. If the "system" is a computer-implemented design tool, claiming the invention as "a computer-implemented system" with an appropriate user-interface or modules for achieving a useful, concrete, and tangible result will help to establish the statutory nature of the invention.

Claim Interpretation

6. In the interest of compact prosecution, the Examiner makes the following claim interpretations in order to apply prior art to the claims. See *Ex parte Ionescu*, 222 USPQ 537 (Bd. Pat. App. & Inter. 1984).

Claims 1, 2 and 13 are interpreted as:

A workshop facility designing method which comprises:

verifying a virtual workshop which is a data model of an existing or newly established workshop;

the step of verifying includes simulating production activity in the workshop and produces a verification result;

constructing an actual workshop based on the verified virtual workshop;

remote monitoring the actual workshop; and

comparing a result of remote monitoring to the verification result.

Claims 17 and 18 are interpreted as:

A system for verifying a workshop wherein a plurality of production facilities include equipment having modular units that can be interchangeably fitted one at a time to that equipment, the system comprising:

a virtual workshop authoring means, where the virtual workshop is a data model of a workshop; and

a simulation means that causes the virtual workshop to perform simulated production activity with respect to a production state and a physical distribution state when the modular units are changed.

The claim interpretations given above are not to be interpreted as endorsements of claim language that complies with 35 U.S.C. §§ 101 and 112. The claim interpretation merely express the Examiner's understanding of what Applicants are seeking to patent.

The claims are so replete with grammatical errors and indefinite limitations that interpreting the dependent claims for the purposes of applying prior art would require significant speculative assumption. Therefore no prior art rejection of the dependent claims is warranted. See *In re Steele*, 305 F.2d 859, 134 USPQ 292 (CCPA 1962); *Ex parte Brummer*, 12 USPQ 2d, page 1654; and also *In re Wilson*, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970).

The prior art made of record on the attached form PTO-892 has not been relied upon and is considered pertinent to applicant's disclosure. Careful consideration of the cited art is required prior to responding this Office Action. Please see 37 C.F.R. 1.111(c).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 2, 13, 17, and 18 are rejected under 35 U.S.C. § 102(b) as being anticipated by "Process Subsystem Architecture for Virtual Manufacturing Validation" by J. Michael Griesmeyer and Fred J. Oppel, III (Griesmeyer).

Regarding claims 1, 2, and 13, Griesmeyer discloses a workshop facility designing and operating method comprising a virtual workshop verifying process of formulating a virtual workshop that is a data model of an existing or newly established workshop ["a process subsystem control architecture that facilitates *virtual manufacturing validation* through the use of common control *software* to run *both the virtual and real subsystem*." (abstract) See Figure 2 (page 2374) and Section 3.1.2 regarding the formulation of a virtual workshop.];

A simulating means that causes the virtual workshop to perform simulated production activity [Section 3.2 for an example of simulated production activity, such as "For example, to determine the 'pallet exists state' of the input port in the real environment requires the use of a proximity sensor to detect the arrival of the pallet. To determine the same state in the *virtual environment* requires the *simulation* to detect the arrival of the pallet utilizing collision routines. The virtual and real drivers generate the same type of state and event information."];

A workshop deployment process of constructing an actual workshop utilizing a data model of the virtual workshop so verified [Section 4, "The configuration files and the part tracking components of the assembly subsystem are verified together with the assembly sequence parameters using the virtual drivers to the primitives. Then, the *construction of the actual assemblies* are performed with the validated scripts using the real drivers."]

And a remote monitoring process of remote monitoring the actual workshop so constructed and comparing a result of remote monitoring and the verification performed during the virtual workshop verifying process [Section 2.3, "The results of the *real primitive execution* need to be recorded and/or displayed to provide record of manufacture and feedback to the

process development efforts. Results of the *virtual execution* must also be displayed and recorded for purposes of *virtual manufacturing validation*."]

Regarding claims 17 and 18, the rejections incorporate the disclosures cited above in regard to claims 1-16, and further:

Griesmeyer discloses that the equipment has modular units that can be interchanged ["Thus, sub-operation primitives include *exchange of grippers*" (section 3, page 2374)]. Griesmeyer discloses that the equipment is arranged in a production line [Figure 2].

Conclusion

Art considered pertinent by the examiner but not applied has been cited on form PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Proctor whose telephone number is (571) 272-3713. The examiner can normally be reached on 8:30 am-4:30 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached at (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100. Information regarding the status of

an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason Proctor
Examiner
Art Unit 2123

jsp

Paul L. Rodriguez 8/3/05
Primary Examiner
Art Unit 2125